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October 25, 1994

Mr. William Wagner
U.S. Department of the Interior
Bureau of Land Management
Utah State Office
P.O. Box 45155
Salt Lake City, Utah 84155-0155

Re: Review of the "Preferred Plan Remediation Report" for the Leeds Silver Reef Reclamation Site, M/053/002, Washington County, Utah

Dear Mr. Wagner:

As agreed during our October 25, 1994 joint agency meeting and conference call with the U.S. EPA, we are forwarding our finalized review comments on the "Preferred Plan Remediation Report" for the Leeds Silver Reef heap leaching mine site. We agreed to finalize our draft review comments and forward them on to you for inclusion into a joint agency response letter to the U.S. EPA Emergency Response Branch located in Denver, Colorado.

Because the plan lacks specific design details it was rather difficult to perform a thorough assessment of the proposal. We are conceptually in agreement with the plan, but do have the following general overview comments/concerns:

1. Mr. Stevenson's cover letter indicates that some of the activities outlined in the draft report will not be addressed as part of the cleanup efforts (eg., ore piles and tailings stockpile). Other areas of concern are also not addressed in the plan. We would like to see the majority (if not all) of the remaining structures, trash and associated debris, removed from the processing facilities area as part of the overall cleanup and reclamation of the site. We recognize that this may be beyond the scope of activities allowed under this EPA remedial action, which may then become the responsibility of the BLM, State and/or claimant to resolve.

2. Page 1, Section 3.0, Holding Pond - The plan describes the possible construction of a temporary evaporation pond to contain any residual water from the asphalt lined overflow pond. The design plans should describe how and where the temporary pond will be constructed. What will be done with the pond (and liner?) once the water is evaporated (or treated), and how will the pond be reclaimed?

It is our understanding that any waste water discharges to the wetland area will be based upon the natural background constituent levels of waters in the immediate and/or adjacent area.

3. Page 2, Section 4.0 & 5.0, Ore Piles & Tailings Stockpile - The plan indicates that these materials will be removed and placed on the heap leach pile. The cover letter indicates these materials will not be removed. What was the basis for the determination that these materials are not hazardous/dangerous enough to warrant removal and containment within the heap?

   The avoid confusion, the final design plan should only include those cleanup activities which *will be* completed under this EPA remedial action.

4. Section 6.0, Drainage Water - This section describes the possibility of pressure washing the asphalt liner of the overflow pond to remove all traces of contaminants. The plan should describe the methodology of how this will be accomplished, and how the wash water will be neutralized and/or disposed of. Will that portion of the asphalt liner not removed be a potential source of contamination in the long term? If so, then perhaps it should be removed and placed within the capped heap.

   Has the short and long term integrity of the asphalt liner been ascertained? Have test results confirmed that the asphalt liners are sound and that there is little likelihood that any surface or ground water contamination will occur from the capped pad and ponds? Please provide us with copies of the analytical, physical, and/or mechanical test results that were used as the basis for your decision.

5. Page 3, Section 7.0, Drainage System - This section of the plan describes how surface drainage and runoff from the regraded heap will be managed. The final design plan should describe how the drainage trench/ditch and perforated pipe will be sized (e.g. for what storm event). We concur with the BLM recommendation that the drainage system be designed to handle the 100 yr. storm event. What kind of maintenance will this *french drain* system require over the short/long term?

6. What were the analytical results of any supplemental samples taken from the cored heap leach pad and the pregnant pond sediments? What constituents were analyzed for, how many core holes were drilled and how were the samples collected (eg. composite or specific profile samples)? Is there a need to neutralize the heap leach pad before capping (i.e., to correct the acid drainage problem)? What are the plans for the present underdrain system? Will the underdrain pipes be capped or left open to drain any residual fluids remaining in the heap?

7. Assuming that post-closure monitoring will be necessary, are the existing observation wells adequate, or will other wells be constructed to confirm the long-term integrity of the capping action? What chemical parameters/contaminants have been analyzed for thus far? What type of sampling frequency should be evaluated during the post-closure monitoring period? Will there be residual funds available to assist in the continued monitoring of the site after the remedial actions are complete? Who will/should assume lead responsibility for the post-closure monitoring and maintenance activities?

8. Page 5, Section 8.3, Geosynthetic Cover Option - Depending upon the nature (surface coarseness) of the graded waste material at its interface with the bentonite/FML liner, it may be necessary to place some form of cushion layer beneath the liner to prevent possible puncturing from the underlying waste. What is the life expectancy of the FML liner and the geonet material?

   The 60 centimeter depth of backfill material and 15 centimeter depth of topsoil should be of adequate depth to support a vegetative cover. Does the cost estimate contain a sufficient contingency to cover the possibility of utilizing an offsite borrow area for these materials?

   An appropriate mixture of shallow rooted grasses, *forbs and shrubs(?)* is suggested. The Division and/or BLM could offer assistance in developing an adaptable seedmix recommendation for this site.

9. Page 6, Section 6.0, Additional notes - This section indicates that there is some concern regarding possible uranium contamination in the pregnant pond sediments. It is unclear from the written description if *all* of the sediments will be excavated from the ponds or only a *portion*. The plan describes a *thin* sediment layer of uranium-234, U-235 and U-238 as the bottom layer in the pond. This will be unevenly mixed with @1 foot of soil being excavated from the pond. Based upon hand augering measurements performed by the Division in September of 1992, sediment depth ranged up to 55+ inches in the northeast segment of this pond. A hard impenetrable crystalline evaporite layer prevented hand augering in the central part of the pond beyond 1 foot. It is anticipated that the total evaporite/sediment depth may exceed 60 inches in the center of the pond.

   If *all* of the sediments and evaporites will be excavated from the pond, the estimated plan volumes may be significantly underestimated and could affect the projected cost estimates for removal (and neutralization?).

10. The Division agrees with the BLM recommendation to fence the capped area following closure. This will prohibit continued use and damage by recreational vehicles and help assure the revegetation success on the heap. Maintenance of this fence could become a concern, given the history of onsite vandalism of this property.

11. The Division will temporarily suspend its decision on releasing forfeited reclamation funds, until we have had an opportunity to evaluate the final design plans and any written responses to the questions and concerns raised in this letter.

Thank you for your cooperation and assistance in providing joint review comments on the proposed remediation report. Please contact me, or Wayne Hedberg of my staff, should you have any questions or concerns regarding this letter.

Sincerely,

Lowell P. Braxton
Associate Director, Mining

jb
cc: Peter Stevenson, U.S. EPA, Denver
Jason Knowlton, DERR
DOGM Minerals staff (route)
M053002.rev